

**Preliminary Current Catalog of Solar Flare Events with X-ray Classes M1 - X>17.5
XXIV Cycle of Solar Activity (I.2009 - I0.2017.....)**

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DATE: y m d - year, month and day of the flare event began.

TIME (UT): - the begin, peak, and end times of the flare event. The begin time is defined as the first minute in a sequence of 4 minutes of a steep monotonic increase (0.1-0.8 nm = 1-12.5 keV) in X-ray flux, but if the Ha-flare begins more early, then 'to' is the start time of Ha-flare. In this case the optical importance is put by the first. The X-ray maximum is taken as the minute of the peak X-ray flux. The end time is the time when the flux level decays to a point halfway between the maximum flux and the pre-flare background level X-ray or the time of the Ha-flare, when the duration of Ha-flare more than the duration of X-ray burst.

CLASS,

IMPORTANCE: - X-ray class and optical importance of the flare event. The field 'opt' is blank for X-ray events with no optical correlation (no optical flare observed or no optical patrol at the time and for flares that occur in unassigned regions).
X-ray/opt
The X-ray flare classification by peak flux range (0.1-0.8 nm = 1-12.5 keV) in mks system ($W \cdot m^{-2}$):
A - $<10^{-7}$; B - 10^{-7} - 10^{-6} ; C - 10^{-6} - $<10^{-5}$; M - $5 \cdot 10^{-5}$ - $<10^{-4}$; X - $>10^{-4}$.
Importance is the corrected area of the flare in heliospheric square degrees at maximum brightness, observed in the Ha line (656.3 nm):
S - Subflare (area <2.1 deg²);
1 - Importance 1 (2.1 $<$ area <5.1 deg²);
2 - Importance 2 (5.2 $<$ area <12.4 deg²);
3 - Importance 3 (12.5 $<$ area <24.7 deg²);
4 - Importance 4 (area >24.8 deg²).
Brightness is the relative maximum brightness of flare in Ha: F - faint; N - normal; B - brilliant.

IF: $J \cdot m^{-2}$ - the integrated X-ray flux from the start, through a maximum, and up to 0.5 maximum, in joule multiplied by m (meter) in the minus of the second degree.

COORDINATES: - lt (heliographic latitude) - the distance in degrees from the solar equator.
lt, lg, L lg (central meridian) - the distance in degrees from a line extending from the north solar rotational pole to the south solar rotational pole through the center of the solar disk as viewed from Earth.
L - (Carrington longitude) - the heliographic longitude of solar feature in the coordinate system that rotates with the Sun.
The spherical, heliographic coordinates of the flare event are determined either from the flare image

in the Ha line or from the X-ray burst image, or calculated from the position of the active region, both on the visible disk of the Sun and beyond the limb.

In the latter case, small letters are used.

According to:

<https://www.ngdc.noaa.gov/stp/space-weather/solar-data/solar-features/solar-flares/h-alpha/reports/soon/>,

<http://legacy-www.swpc.noaa.gov/weekly/index.html>) and

<https://www.ngdc.noaa.gov/stp/space-weather/solar-data/solar-features/solar-flares/x-rays/goes/>.

- AR - SWPC NOAA-assigned solar active region number.
- RADIO MHz: - Peak Radio Flux is the peak value above pre-burst background of associated radio bursts at
245 2695 frequencies of 245 and 2695 MHz in solar flux units (sfu), ($1 \text{ sfu} = 10^{-22} \cdot \text{W} \cdot \text{m}^{-2} \cdot \text{Hz}^{-1}$).
- RADIO SWEEP - the intensity is a relative scale from 1 (minor) to 3 (major) of any sweep radio event associated with the energetic event, as follows:
Type II: Slow drift burst.
Type IV: Broadband smooth continuum burst (<http://legacy-www.swpc.noaa.gov/weekly/index.html>).
- CME: - Coronal Mass Ejection:
to, v, da, pa to - onset time, earliest indication of liftoff;
v - median velocity (km/s);
da - angular width (degrees);
pa - position angle measured from solar north in degrees (counter-clockwise);
CME on LASCO CME - list: https://cdaw.gsfc.nasa.gov/CME_list/;
c - preliminary CME - list: <http://sidc.oma.be/cactus/catalog.php>;
g - no data, g(6/06-8/01) - there are no data from 06d06h to 08d01h.
- X-ray hard: - An: R - Space satellite RHESSI (The Reuven Ramaty High Energy Solar Spectroscopic Imager)
An, tm, Emax http://hesperia.gsfc.nasa.gov/hessidata/dbase/hessi_flare_list.txt;
n - number of hard X-ray bursts in the flare event - RHESSI analysis;
tm - time of maximum intensity of the hardest X-ray burst in this flare event;
Emax - maximal energetic band of the hardest X-ray in the flare event in keV.
g - no data, g(6/06-8/01) - there are no data from 06d06h to 08d01h.
- PROTONS: - D - day of Solar Proton Event flux maximum;
D, tmax, Ipr tmax - time of proton ($E > 10 \text{ MeV}$) maximum;
Ipr - proton flux for ($E > 10 \text{ MeV}$), given in particle flux units ($1 \text{ pfu} = 1 \text{ p}/(\text{cm}^2 \cdot \text{s} \cdot \text{sr})$).
We defines the start of a proton event to be the first of 3 consecutive data points with fluxes greater than or equal to 1 pfu.
- GLE - Ground Level Event.
- n - solar neutrons registration.

2011

DATE		TIME			CLASS	COORDINATES		AR	RADIO MHz		DYNAMIC EVENT		CME	X-ray hard		PROTONS		Attendant	
y	md	to	tm	te	IMPORTANCE	IF	lt lg L		245	2695	RADIO SWEEP	to / v / da / pa	km/s	An / tm / Emax,	E>10MeV	GLE	n	phenomena	
					X-ray/opt	J·m ⁻²			sfu					keV	D tmax/Ipr				
20110128	0044	0103	>0110	M1.3	.093	N16W90L343	11149				II/1	0126/0606/119/290		R2 /0056/025-050	28 1625/0003			DSF	
20110209	0123	0131	>0135	M1.9/SF	.0063	N17W72L172	11153												
20110213	1728	1738	1846	M6.6/1N	.040	S20E04L036	11158	9900	210	II/1	IV/2	1836/0373/276/089							
20110214	1720	1726	1804	M2.2/1N	.009	N56W18L034	11158				II/2	1824/0326/360/315	R	/1728/006-012					
20110215	0144	0156	>0206	X2.2	.160	S20W15L034	11158	45000	1300	II/2	IV/2	0224/0669/360/189	R	/0156/050-100	15 1115/0002		WL DSF		
20110216	0132	0139	>0146	M1.0	.0051	S20W24L034	11158					0236/0411/092/035	R	/0138/025-050					
20110216	0735	0744	>0755	M1.1	.0086	N10E25L331	11161						R	/0748/012-025					
20110216	1419	1425	1436	M1.6/1F	.0044	S20W32L034	11158	9900	330	II/3	IV/1	g(16/13-16/21)	R	/1425/025-050					
20110218	0955	1011	>1015	M6.6	.0019	S20W53L034	11158	230				1212/0350/089/272?	R2	/1011/050-100					
20110218	1023	1026	>1037	M1.0	.007	N10E02L334	11162												
20110218	1259	1303	>1306	M1.4	.0033	S20W54L034	11158						R	/1303/025-050					
20110218	1400	1408	>1415	M1.0	.005	N10W01L336	11162					1712/0259/099/310?	R	/1408/012-025					
20110218	2056	2104	>2114	M1.3	.0095	N10W04L336	11162						R	/2103/006-012					
20110224	0723	0735	>0742	M3.5	.020	N14E87L179	11163	800	180	II/2	IV/1	0748/1186/158/096	R	/0732/050-100					
20110228	1238	1252	>1303	M1.1	.0091	N24E40L164	11164	100				1348/0341/030/079	R	/1250/025-050					
20110307	0500	0513	0525	M1.2/1F	.0081	N24W48L164	11164						R	/0511/025-050					
20110307	0749	0754	0803	M1.5/SF	.0037	S20W78L182	11165	110											
20110307	0759	0807	0828	M1.4/1F	.010	N25W47L164	11164	100	100				R	/0820/006-012					
20110307	0914	0920	0931	M1.8/SF	.0089	N23W50L164	11164		190				R	/0919/025-050					
20110307	1345	1430	>1456	M1.9/SF	.062	N10E18L091	11166				II/2	IV/1	1448/0698/261/053	R3	/1409/012-025?				
20110307	1943	2012	>2058	M3.7	.120	N22W67L164	11164	5400	23000	II/3		2000/2125/360/313	R2	/2005/100-300	08 0800/0050	n	DSF		
20110307	2145	2150	>2155	M1.5	.0066	S17W82L182	11165						R2	/2149/025-050					
20110308	0224	0229	0238	M1.3/1N	.0032	S18W79L182	11165						R	/0229/025-050					
20110308	0337	0358	>0420	M1.5/1F	.028	S19E69L028	11171		130	II/2	IV/1	0412/0732/260/119	R	/0347/025-050					
20110308	1035	1044	>1055	M5.3/1F	.034	S17W86L182	11165												
20110308	1808	1828	>1841	M4.4	.057	S17W90L182	11165					1900/0283/043/249	R	/1821/050-100			DSF		
20110308	1946	2016	>2119L	M1.4	.067	S17W90L182	11165					2012/0702/099/225	R3	/2018/012-025					
20110309	1035	1107	>1121	M1.7/SF	.026	N08W03L093	11166	480				1212/0315/013/235?	R2	/1051/025-050					
20110309	1317	1402	>1413	M1.7/SF	.023	N09W061093	11166				IV/1	1612/0215/018/235?	R2	/1400/025-050					
20110309	2313	2323	0016	X1.5/2B	.067	N08W09L093	11166						R2	/2322/050-100			DSF		
20110310	2234	2241	>2249	M1.1/SF	.0058	N08W25L093	11166					0012/0143/014/091?	R	/2240/012-015					
20110312	0433	0443	0454	M1.3/2N	.0079	N05W36L093	11166			II/1									
20110314	1930	1952	2015	M4.2/1N	.010	N18W48L062	11169					2135/0146/044/279	R2	/1951/050-100					
20110315	0018	0022	>0024	M1.0	.0018	N18W55L062	11169						R	/0022/050-100					
20110323	0203	0217	>0224	M1.4	.009	S16E63L200	11176	970				0236/0772/051/131	R	/0204/006-012					
20110324	1201	1207	1217	M1.0/1F	.0033	S16E43L200	11176	910				1248/0540/191/092?	R	/1212/012-025					
20110325	2308	2322	>2330	M1.0/SF	.008	S12E23L200	11176	870	170	II/1	IV/1	0125/0339/012/004?	R	/2319/012-025					
20110415	1702	1712	1844	M1.3/1F	.012	N14W19L338	11190		64			1936/0193/028/114	R2	/1722/012-025					
20110422	0435	0457	0522	M1.8/SN	.029	S18E43L192	11195					0624/0248/060/305?	R	/0448/025-050					
20110422	1547	1553	1641	M1.2/1N	.011	S18E35L192	11195					g	R	/1617/012-025					
20110528	2109	2150	>2201	M1.1/SF	.023	S20E71L037	11226						R2	/2150/012-025					
20110529	1008	1033	1133	M1.4/1F	.038	S22E65L037	11226	100		II/1		1036/0646/119/116?	R	/1031/012-025					
20110607	0616	0641	0809	M2.5/2N	.044	S21W54L037	11226	6400	710	II/2	IV/2	0649/1255/360/250	R2	/0638/050-100	07 1820/0073		n		
20110614	2136	2147	>2210	M1.3/SF	.018	N15E77L165	11236					2236/0313/028/135	R	/2146/050-100	17 ~00/0008				
20110727	1548	1607	1640	M1.1/1N	.013	N20E37L358	11260	140					R	/1605/012-025					

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y	md	to	tm	te	IMPORTANCE	IF	lt	lg	L		245	2695	RADIO	SWEEP	to	v	/da	/pa	An	/tm	/Emax,	E>10MeV	GLE	n	phenomena
					X-ray/opt	J·m ⁻²					sfu						km/s		keV	D	tmax/Ipr				
20110730	0204	0209	>0212	M9.3/SF	.020	N21W68L330	11199?			180	180							R	/0209/050-100						
20110802	0519	0619	>0648	M1.4/1N	.039	N14W15L358	11261			620	220	II/2		0636/0712/268/285				R3	/0612/012-025	02	~11/0002				
20110803	0308	0337	0405	M1.1/SF	.016	N17W24L358	11261											R2	/0335/025-050						
20110803	0429	0432	0504	M1.7/1F	.003	N15E08L301	11263				130							R2	/0432/050-100						
20110803	1317	1348	1538	M6.0/2B	.120	N16W30L358	11261			1400	180	II/1	IV/2	1400/0610/360/307				R2	/1358/012-025						
20110804	0341	0357	0505	M9.3/2B	.054	N19W36L358	11261			13000	720	II/2		0412/1315/360/298				R3	/0347/050-100	05	2150/0096			DSF	
20110808	1800	1810	1855	M3.5/1B	.022	N16W61L301	11263			520	300	II/1		1812/1343/237/281?				R	/1828/012-025	08	2000/0004				
20110809	0319	0354	0439	M2.5/1B	.035	N18W68L301	11263							0348/1146/141/272				R2	/0326/025-050						
20110809	0748	0805	0904	X6.9/2B	.190	N17W69L301	11263			19000	710	II/1		0812/1610/360/279				R3	/0805/025-050	09	1210/0026				
20110904	1121	1145	>1150	M3.2/SF	.018	N15W76L137	11286							1224/0203/053/287?				R	/1124/012-025						
20110905	0408	0428	>0432	M1.6/SF	.022	N15W74L304	11286											R2	/0426/012-025						
20110905	0727	0758	>0806	M1.2/SF	.017	N15W90L304	11286											R2	/0757/012-025						
20110906	0135	0150	0236	M5.3/1B	.054	N14W07L224	11283			54000		II/3	IV/1	0224/0782/360/070				R	/0146/025-050	06	1410/0002				
20110906	*2212	2220	0029	X2.1/2B	.058	N14W18L224	11283			64000	740	II/2	IV/3	2306/0575/360/300				R	/2220/100-300	07	0715/0009				
20110907	*2232	2238	>2348	X1.8/3B	.069	N14W28L224	11283			180	1300	II/1	IV/1	2306/0792/167/269				R	/2303/006-012						
20110908	1532	1546	1632	M6.7/1N	.042	N14W40L224	11283			130	91		IV/1	1636/0214/037/311				R	/1544/050-100						
20110909	0601	0611	0633	M2.7/1N	.015	N16W47L224	11283			120	62	II/1		0724/0318/086/265				R	/0609/050-100						
20110909	1239	1249	1305	M1.2/1F	.0078	N13W52L224	11283			150								R	/1244/025-050						
20110910	0718	0740	0803	M1.1/SN	.019	N12W61L224	11283			2300				0848/0610/169/257				R	/0727/025-050						
20110921	1204	1223	>1245	M1.8	.034	N11E90L279	11302											R2	/1234/012-025						
20110922	0953	1000	>1009	M1.1	.0076	N11E80L279	11302											R2	/0958/025-050						
20110922	1029	1101	1227	X1.4/2N	.450	N13E78L279	11302				970	II/2	IV/3	1048/1905/360/072				R3	/1054/025-050	26	1155/0035				
20110923	0136	0159	0239	M1.6/1N	.016	N25W63L057	11295											R	/0156/012-025						
20110923	2154	2215	>2234	M1.6/SF	.030	N23W73L057	11295			190	210			2348/0337/021/326				R2	/2209/025-050						
20110923	2348	2356	>0004	M1.9/SF	.013	N11E52L279	11302			170	220	II/3		0012/0617/072/108				R	/2354/025-050						
20110924	0921	0940	1010	X1.9/2B	.110	N12E60L279	11302			33000	660	II/2	IV/3	0948/1936/145/090				R2	/0940/100-300						
20110924	1233	1320	>1410	M7.1/1B	.290	N12E58L279	11302			4800	12000			1248/1915/360/078				R2	/1310/012-025						
20110924	1636	1659	>1715	M1.7	.032	N23W84L057	11295						IV/1					R	/1709/012-025						
20110924	1719	1725	>1731	M3.1	.016	N12E51L279	11302											R	/1722/025-050						
20110924	1759	1815	>1824	M2.8/1B	.033	N15E56L279	11302							1836/0585/059/127											
20110924	1909	1921	>1941	M3.0	.046	N14E54L279	11302			2100	270	II/2		1936/0972/360/043				R	/1915/025-050					n	
20110924	2029	2036	>2042	M5.8	.024	N13E52L279	11302			130								R2	/2035/025-050						
20110924	2103	2127	2145	M1.2/SF	.007	S29W67L034	11303																		
20110924	2238	2358	0015	SF/M1.0	.011	S29W68L034	11303			190			IV/2	0024/0557/132/238				R2	/2355/025-050						
20110925	0227	0233	0302	M4.4/SF	.014	N12E49L279	11302							0348/0401/008/017				R	/0243/025-050						
20110925	0431	0450	0541	M7.4/2N	.096	N11E47L279	11302			320	150		IV/2	0512/0788/193/109				R	/0445/025-050						
20110925	0846	0849	>0852	M3.1/1N	.0059	N15E45L279	11302							0912/0398/016/015?											
20110925	0925	0935	>0953	M1.5	.021	S29W74L034	11303			100	250			1036/0652/038/113?				R	/0932/050-100						
20110925	1400	1533	1843	2B/M3.7	.016	N16E43L279	11302			1500	180			1600/0676/067/108				R5	/1533/050-100						
20110925	1651	1658	>1709	M2.2/SF	.017	S28W75L034	11303											R2	/1704/012-025						
20110926	0506	0508	0657	M4.0/1B	.014	N13E34L279	11302				360		IV/1	0624/0689/048/249?				R6	/0508/050-100						
20110926	1431	1446	1536	2B/M2.6	.026	N14E30L279	11302							1512/0420/031/082				R2	/1445/025-050						
20110928	1324	1328	1341	M1.2/1N	.0023	N13E03L279	11302				110			1424/0307/044/254				R	/1340/006-012						
20110930	1852	1906	1935	1F/M1.0	.008	N08E06L246	11305			220	260	II/1		2000/0337/183/062				R	/1918/012-025						
20111001	0856	0959	1039	M1.2/1N	.029	N10W06L246	11305			540	180	II/1	IV/2	0936/0448/203/315				R3	/0932/012-025						
20111002	0037	0050	0137	M3.9/1N	.028	N09W12L246	11305			270				0200/0259/103/179				R	/0047/025-050						
20111002	1719	1723	1758	M1.3/SF	.0028	N09W56L279	11302							1824/0241/048/286				R	/1728/012-025						
20111020	0310	0325	>0344	M1.6	.022	N18W88L121	11312						IV/1	0336/0893/193/288				R	/0318/025-050						SPY
20111021	1253	1300	>1308	M1.3	.074	N15W79L051	11319					II/1	IV/1	1348/0129/058/358				R	/1258/050-100						

DATE y m d	TIME			CLASS IMPORTANCE X-ray/opt	IF J·m ⁻²	COORDINATES		AR	RADIO MHz		DYNAMIC EVENT		CME		X-ray hard		PROTONS		Attendant phenomena		
	to	tm	te			lt	lg		L	245	2695	RADIO SWEEP	to	v	/da	/pa	An	/tm		/E _{max} , keV	E>10MeV D
20111022	1000	1110	>1309	M1.3	.110	N27W87L056	11314						1024/1005/360/311	R5	/1029/025-050	23 1535/0013					
20111031	1455	1508	>1527	M1.1	.015	N20E89L117	11339						1624/0404/108/026	R	/1503/025-050?					DSF	
20111031	1721	1808	>1855	M1.4	.050	N22E88L117	11339						2148/0184/014/045	R3	/1802/012-025						
20111102	2152	2201	2242	M4.3/SN	.045	N20E73L117	11339						g	R2	/2228/012-025						
20111103	1058	1101	1137	M2.5/SF	.020	N22E69L117	11339			54			1100/0216/011/326	R	/1114/025-050						
20111103	2016	2027	2140	X1.9/2B	.100	N22E63L117	11339			620			2330/0991/360/090	R	/2123/012-025	04	~00/0004		n		
20111103	2328	2336	>2344	M2.1/1N	.014	N19E61L117	11339						0125/0756/360/084								
20111104	2031	2040	2058	M1.0/SF	.006	N18E46L117	11339						2324/0312/013/070	R	/2045/012-025						
20111105	0308	0335	>0358	M3.7/1F	.082	N20E46L117	11339						0612/0555/038/026?	R	/0324/025-050						
20111105	1025	1121	<1237	M1.1/SN	.017	N21E42L117	11339						1148/0167/018/143?	R	/1116/025-050						
20111105	2031	2038	2139	M1.8/1N	.016	N21E34L117	11339						2116/0372/017/255?	R2	/2041/012-025						
20111106	0046	0103	0155	M1.2/SF	.018	N21E35L117	11339						0125/0222/141/085	R3	/0137/012-025						
20111106	0614	0635	0653	M1.4/SN	.010	N21E31L117	11339						0812/0235/041/063	R	/0617/003-006						
20111109	1304	1335	>1412	M1.1/SF	.033	N24E35L065	11342	110		II/2			1336/0907/360/048	R2	/1401/012-025					DSF	
20111115	0859	0912	0933	SF/M1.2	.010	N20W74L087	11348						0948/0510/084/331	R2	/0911/012-025						
20111115	1230	1248	>1250	M1.9/SF	.012	S17E30L338	11346							R	/1242/025-050						
20111115	2227	2235	>2242	M1.1/1F	.0061	N20W80L087	11348						0000/0294/072/314								
20111225	1811	1816	1911	M4.0/1N	.011	S22W26L225	11387	12000			120	II/2	IV/3	1924/0239/065/231	R2	/1818/025-050	26	0135/0003			
20111226	0213	0227	0254	M1.5/1N	.012	S21W33L225	11387				230			R	/0224/025-050						
20111226	2012	2030	2049	M2.3/SF	.022	S21W42L225	11387				130			R2	/2018/025-050						
20111229	1340	1350	1457	M1.9/1F	.015	S25E69L086	11389							R3	/1347/012-025						
20111229	2143	2151	2216	M2.0/SF	.012	S27E65L086	11389						2312/0768/177/119	R	/2150/025-050						
20111230	0303	0309	>0313	M1.2/SN	.004	S27E64L086	11389														
20111231	1309	1315	1338	M2.4/SF	.007	S25E44L086	11389			150				R	/1315/025-050						
20111231	1616	1626	1634	M1.5/1F	.0085	S26E42L086	11389							R	/1625/025-050						

2012

DATE y m d	TIME			CLASS IMPORTANCE X-ray/opt	IF J·m ⁻²	COORDINATES		AR	RADIO MHz		DYNAMIC EVENT		CME		X-ray hard		PROTONS		Attendant phenomena		
	to	tm	te			lt	lg		L	245	2695	RADIO SWEEP	to	v	/da	/pa	An	/tm		/E _{max} , keV	E>10MeV D
20120114	1314	1318	>1320	M1.4	.003	N15E73L213	11401							R	/1321/012-025						
20120117	0441	0453	0519	M1.0/1N	.011	N18E54L213	11401						0548/0172/026/094	g							
20120118	1904	1912	2018	M1.7/1N	.015	N17E33L213	11401						2048/0180/028/104	g							
20120119	1344	1605	2001	M3.2/SF	.270	N30E30L211	11402					II/1	IV/1	1436/1120/360/020	g			20	~21/0002		DSF
20120123	0338	0359	0553	M8.7/2B	.200	N28W21L211	11402	4000	5100				IV/2	0400/2175/360/326				24	1530/6310	n	DSF
20120127	1737	1837	1913	X1.7/2F	.320	N27W71L211	11402	1100	810			II/3	IV/2	1827/2508/360/296	g			28	0205/0796		
20120206	1931	2000	>2017	M1.0/SF	.019	N19W60L056	11410							2148/0274/069/041?	g						
20120302	1729	1746	>1807	M3.3/SF	.049	N16E83L301	11429		51					1800/0710/206/059	R2	/1757/100-300					
20120304	1029	1052	>1216	M2.0/1N	.092	N19E61L301	11429		1400	2500			IV/2	1100/1306/360/052	R3	/1118/100-300	05	~18/0003			
20120305	0230	0409	0643	X1.1/2B	.370	N17E52L301	11429	57000	12000					0400/1531/360/061	R3	/0256/100-300					
20120305	*1910	1916	>1921	M2.1/1B	.0078	N14E44L301	11429								g(5/04-6/02)						
20120305	*1927	1930	1950	M1.8/1B	.0027	N14E44L301	11429								g						
20120305	2226	2234	>2242	M1.3	.0073	N16E23L301	11429								g						
20120306	0022	0028	0039	M1.3/SN	.0037	N16E41L301	11429														
20120306	0136	0144	>0150	M1.2	.0059	N16E39L301	11429														
20120306	0401	0405	0419	M1.0/1N	.0026	N16E39L301	11429							0448/0536/111/022	R	/0404/012-025					

DATE		TIME			CLASS		COORDINATES		AR	RADIO MHz		DYNAMIC EVENT		CME		X-ray hard		PROTONS		Attendant						
y	m	d	to	tm	te	IMPORTANCE	IF	lt	lg	L	245	2695	RADIO	SWEEP	to	v	/da	/pa	An	/tm	/Emax,	E>10MeV	GLE	n	phenomena	
						X-ray/opt	J·m ⁻²				sfu						km/s		keV	D	tmax/Ipr					
20131028	0141	0203	0231	X1.0/2N	.084	N04W66L027	11875				120	120	II/2		0224/0695/360/296				R2	/0201/100-300	29 0000/0005					
20131028	0432	0441	0453	M5.1/2B	.021	N08W71L027	11875					170	II/2	IV/1	0448/1201/156/313											
20131028	1132	1153	1336	M1.4/2N	.040	S16W44L009	11877								1212/0681/027/282				R7	/1201/012-025						
20131028	*1400	1405	1418	M2.8/1N	.014	N06W75L027	11875					55			1412/1073/093/303											DSF
20131028	*1446	1501	1523	M2.7/1N	.0098	S08E28L293	11882								1536/0812/360/086				R	/1512/050-100						
20131028	*1507	1515	>1613	M4.4/1N	.026	S06E28L293	11882	2200			170	II/2	IV/1		1536/0812/360/086				R2	/1613/012-025						
20131028	2048	2057	>2102	M1.5	.0068	N07W83L027	11875	120							2125/0771/142/301				R	/2056/100-300						
20131029	2142	2154	>2201	X2.3	.14	N05W89L027	11875	3900					II/1	IV/1	2200/1001/360/249				R	/2214/012-025	30 0925/0005					
20131031	1336	1351	>1402	M1.9	.019	S12W88L352	11877								1412/0121/018/257?				R	/1359/012-025						
20131101	1946	1953	2055	M6.3/1B	.023	S11E01L261	11884				290				2136/0122/065/026											02 2000/0003
20131102	2213	2221	2248	M1.6/1F	.0064	S12W11L261	11884								2312/0408/037/004				R	/2220/025-050						
20131103	0516	0522	0540	M5.0/2B	.013	S12W16L261	11884												R2	/0539/012-025						
20131105	0812	0818	0824	M2.5/1F	.0054	S17E48L170	11890					53			0824/0850/197/145											
20131105	1808	0813	>0817	M1.0	.003	S12E46L170	11890	2100			110				1948/0402/012/025?				R2	/1811/050-100						
20131105	2207	2212	2307	X3.3/1B	.066	S12E46L170	11890	79000			910	II/2	IV/1		2236/0562/195/141				R	/2259/006-012						
20131106	1339	1346	~1411	M3.8/1N	.019	S12E37L170	11890	4900			190	II/2			1424/0347/122/159				R	/1349/050-100						
20131106	2344	0002	>0014	M1.8/SFY	.021	S16W89L261	11882								0000/1033/360/233				R	/0009/012-025	07 0435/0007					
20131107	0334	0340	0350	M2.3/SN	.006	S14E28L170	11890	1700					II/1		0424/0373/069/161				R	/0340/050-100						
20131107	1415	1425	1441	M2.4/1N	.012	S13E23L170	11890	11000			170	II/1	IV/1		1512/0411/360/130				R2	/1428/050-100						
20131108	0420	0426	0442	X1.1/2B	.028	S14E15L170	11890	65000			1000	II/1	IV/1						g							09 1115/0002
20131108	0922	0928	0938	M2.3/1B	.0049	S18W28L205	11891												R	/0931/006-012						
20131110	0508	0514	0536	X1.1/2B	.035	S14W13L170	11890	10000			360	II/2	IV/1		0536/0682/262/198				R	/0514/012-025	11 0920/0001					
20131111	1101	1118	>1130	M2.4	.030	S18E62L066	11897				76								R	/1109/012-025						
20131113	1457	1520	>1541	M1.4	.021	S20E47L066	11897								1536/0438/109/045				R2	/1516/012-025						
20131115	0220	0229	>0233	M1.0/SF	.005	N07E53L039	11899												R	/0228/025-050						
20131116	0447	0453	>0457	M1.2	.004	S20W30L105	11900								0624/0323/053/199				R	/0455/012-025						
20131116	0745	0749	0753	M1.6/1F	.004	S19W29L105	11900												g							
20131117	0506	0510	0513	M1.0/SN	.002	S20W42L105	11900								0548/0326/020/004				R	/0509/012-025						
20131119	1014	1026	>1135	X1.0/SF	.066	S11W70L098	11893	23000			530	II/1							R	/1146/006-012	19 1825/0004					
20131121	1052	1111	>1142	M1.2	.025	S14W89L098	11893								1136/0668/148/232?				R2	/1107/012-025						
20131123	0220	0232	0314	M1.1/1N	.014	N14W56L039	11999								0324/0460/036/010?				R	/0230/012-056						
20131123	1249	1257	>1305	M1.0	.0068	N11W60L039	11999								1248/1536/013/169?											
20131207	0717	0729	0812	M1.2/1N	.017	S16W49L208	11909	440			220	II/1			0736/1085/360/274				R	/0749/006-012						
20131219	2306	2319	>2326	M3.5	.0021	S16E88L269	11934								2348/0244/099/102				R	/2318/025-050						
20131220	1135	1157	>1207	M1.6	.019	S16E78L269	11934												R2	/1153/025-050						
20131222	*0805	0811	>0818	M1.9/SF	.0084	S17W51L004	11928								0848/0231/032/210				R5	/0811/025-050						
20131222	*0833	0837	>0841	M1.1/SF	.0036	S17W52L004	11928								1024/0270/055/152				R5	/0837/012-025						
20131222	1424	1438	1512	M1.6/1B	.019	S18E44L269	11934												R2	/1425/025-050						
20131222	1445	1512	1533	1N/M3.3	.016	S19W56L004	11928								1436/0202/024/210?				R	/1512/025-050						
20131222	2123	2208	2230	M1.6/SN	.014	S17W58L004	11928								2236/0213/032/212				R5	/2210/012-025						
20131222	2344	0003	>0005	M1.3/SF	.0058	S17E60L004	11928	130							0024/0690/184/092				R3	/2357/050-100						
20131223	0859	0906	0917	M1.6/1N	.0045	S21W03L004	11928								1024/0270/055/152											
20131229	0749	0756	0808	M3.1/1N	.011	S18E01L223	11936	1100			110															
20131231	2145	2158	>2220	M6.4/2N	.091	S16W35L223	11936								2236/0271/087/251				R	/2211/050-100						

DATE		TIME			CLASS		COORDINATES		AR	RADIO MHz		DYNAMIC EVENT		CME		X-ray hard		PROTONS		Attendant					
y	m	d	to	tm	te	IMPORTANCE	IF	lt	lg	L	245	2695	RADIO	SWEEP	to	v	/da	/pa	An	/tm	/Emax,	E>10MeV	GLE	n	phenomena
						X-ray/opt	J·m ⁻²				sfu					km/s	keV	D	tmax/Ipr						
20141009	*	0154	0158	>0202	M1.4/1F	.0044	S15W45L120	12182											R	/0154/025-050					
20141009		0641	0659	0721	1N/M1.2	.0076	S18W46L120	12182											R	/0648/025-050					
20141014		1821	1837	>1846	M1.1	.0097	S12E88L252	12192			1300				1848/0848/360/090										
20141014		1907	1921	>0019	M2.2	.31	S11E88L252	12192			160								R3	/1907/025-050					
20141016		1258	1303	>1305	M4.3	.0082	S13E88L252	12192			9000				1326/0777/033/096				R	/1258/050-100					
20141018		0702	0758	>0849	M1.6/SF	.066	S13E71L252	12192																	
20141019		0417	0503	0639	X1.1/SN	.39	S10E58L252	12192							0448/0139/077/116				R	/0547/006-012					
20141020		0854	0911	1003	1N/M3.9	.028	S14E42L252	12192				47							R4	/0958/012-025					
20141020	*	1600	1637	2023	M4.5/2N	.099	S14E37L252	12192				190			1724/0161/029/093				R3	/1619/025-050					
20141020	*	1855	1902	>1904	M1.4/2N	.0052	S15E46L252	12192			14000	120			1912/0187/234/167				R	/1857/050-100					
20141020	*	1953	2004	>2013	M1.7/2N	.015	S14E36L252	12192											R	/1947/025-050					
20141020		2211	2255	0007	1N/M1.2	.017	S14E36L252	12192											R8	/2239/025-050					
20141021		1335	1338	>1340	M1.2	.0014	S14E36L252	12192			42000	510	II/2					g							
20141022		0116	0159	>0228	M8.7	.21	S13E21L252	12192				580	IV/1					R	/0112/050-100						
20141022		0511	0517	>0521	M2.7	.01	S15E14L252	12192											R	/0457/012-025					
20141022		1402	1428	2230	X1.6/2B	.34	S14E13L252	12192				200						R8	/1424/100-300						
20141022		1551	1557	>1603	M1.4	.0075	S11E88L164	12197					II/1		1612/0434/080/100			R	/1551/025-050						
20141023		0944	0950	>0956	M1.1/1F	.0053	S16E03L252	12192										g							
20141024		0737	0748	>0753	M4.0	.023	S19W05L252	12192			1200	150	II/1	IV/1	0800/0677/096/203			R	/0736/050-100						
20141024		2050	2141	0014	3B/X3.1	.86	S16W21L252	12192				210			2148/0184/035/210			R3	/2106/050/100						
20141025		1338	1708	~0007	3B/X1.0	.39	S16W31L252	12192				160						R28	/1631/025-050						
20141026		1004	1056	1253	2B/X2.0	.34	S18W40L252	12192				200						R5	/1012/025-050						
20141026		1708	1717	>1730	M1.0	.0099	S13W38L252	12192				110						R	/1722/012-025						
20141026		1807	1815	>1820	M4.2	.023	S14W37L252	12192										R	/1806/050-100						
20141026		1843	1849	>1856	M1.9	.01	S13S38L252	12192																	
20141026		1959	2021	>2045	M2.4	.052	S15W45L252	12192			400							R	/2032/012-025						
20141027	*	0001	0034	>1022	3B/M7.1	.10	S14W44L252	12192										R	/2353/025-050						
20141027	*	0144	0202	>0211	M1.0/3B	.013	S14W44L252	12192										R2	/0126/025-050						
20141027	*	0335	0341	>0348	M1.3/3B	.0073	S13W45L252	12192										R	/0312/025-050						
20141027	*	0552	0715	1348	2B/C9.6	.0037	S18W48L252	12192										R	/0655/025-050						
20141027	*	0959	1009	>1026	2B/M6.7	.093	S18W48L252	12192										R	/0944/025-050						
20141027		1404	1447	<1531	2B/X2.0	.45	S17W52L252	12192				110			1512/0170/055/216?			R2	/1401/050-100						
20141027		~1524	1740	0009	1F/M1.4	.0086	S19W56L252	12192										R2	/1734/025-050						
20141028	*	0215	0242	0427	M3.4/1B	.076	S14W61L252	12192										R	/0238/025-050						
20141028	*	0323	0332	>0341	M6.6/1B	.052	S14W61L252	12192										R3	/0321/025-050						
20141028		1354	1406	>1423	M1.6/SF	.020	S18W73L252	12192				29						R	/1342/025-050						
20141029		0603	0820	>0852	M1.0/SF	.076	S14W74L252	12192										R6	/0602/025-050						
20141029		0954	1001	>1006	M1.2	.0055	S18W77L252	12192										g							
20141029		1419	1433	1507	SF/M1.4	.019	S16W81L252	12192							1512/0192/101/264			R4	/1423/025/050						
20141029		1606	1620	>1633	M1.0	.012	S14W82L252	12192										g							
20141029		1847	1850	>1852	M1.3	.0019	S13W47L252	12192										R	/1847/050-100						
20141029		2118	2122	>2125	M2.3	.0049	S09W88L252	12192										R	/2122/025-050						
20141030		0034	0037	>0040	M1.3	.0027	S14W81L252	12192										R	/0032/100-300						
20141030		0119	0135	>0156	M3.5	.047	S14W86L252	12192										R	/0110/025-050						
20141030		0417	0428	0439	M1.2/SF	.009	S16W89L252	12192										R	/0416/025-050						
20141103		1123	1153	>1217	M2.2	.042	N17E90L015	12205					II/2		1200/0447/196/058			R2	/1114/025-050						
20141103		2215	2240	2322	M6.5/1F	.066	N14E89L012	12205				180	II/1		2313/0638/155/061			R2	/2212/012-025						
20141104	*	0759	0838	>0851	M2.6/SF	.071	N15E82L012	12205							0848/0627/175/065			R	/0755/012-025						
20141104	*	0842	0904	0935	1F/M2.3	.029	N15E82L105	12205										R2	/0849/025-050						

D A T E			T I M E			CLASS		COORDINATES		AR	RADIO MHz		DYNAMIC EVENT		CME		X-ray hard		PROTONS		Attendant				
y	m	d	to	tm	te	IMPORTANCE	IF	lt	lg	L	245	2695	RADIO SWEEP	to	v	/da	/ pa	An	/ tm	/ Emax,	E>10MeV	GLE	n	phenomena	
						X-ray/opt	J·m ⁻²				sfu			km/s			keV	D	tmax/Ipr						
20150611	0849	0855	>0859	M1.0	.0034	S19E83L005	12367							1000	0689	128	075	R	/0854	025-050					
20150613	0711	0723	0755	SF/M1.3	.017	N14W78L127	12360											R2	/0713	050-100					
20150614	0052	0059	>0109	M2.0	.014	N14W81L127	12360											R	/0104	012-025					
20150618	0033	0127	>0155	M1.2	.040	S16W81L077	12365							0126	1714	195	270	R2	/0127	012-025	18	1435	0016		
20150618	1629	1736	1905	1N/M3.0	.087	N15E50L303	12371				250	2200	IV/2	1724	1305	360	092	R3	/1637	100-300					
20150620	0628	0648	~0734	M1.0/1F	.018	N13E25L303	12371							0643	0584	360	177	R2	/0633	050-100					
20150621	*0102	0142	0434	M2.0/1N	.032	N12E13L303	12371				360	100	II/2	IV/2	0236	1366	360	072	R2	/0128	025-050	22	1900	1070	
20150621	*0206	0236	0434	1N/M2.6	----	N12E13L303	12371				1000	490						R6	/0228	025-050					
20150621	<0924	0944	1031	2B/M3.8	.016	S21W57L005	12367						IV/1												
20150621	1810	1820	>1828	M1.1	.0079	S18W65L005	12367											R	/1826	012-025	22	1900	1070		
20150622	1723	1823	2053	2B/M6.5	.019	N12W08L301	12371				10000	1000	II/1		1836	1209	360	358	R7	/1816	100-300				
20150625	0802	0814	0905	M7.9/3B	.017	N09W42L301	12371				1000	3800	II/1	IV/1	0836	1627	360	330	R	/0848	050-100	27	0030	0022	
20150703	1247	1251	1253	M1.5/1N	.0025	S15E68L092	12378											R	/1251	050-100					
20150706	0824	0844	0859	M1.0/SN	.012	N17E42L073	12381											R2	/0829	025-050					
20150706	2032	2040	2050	M1.7/2N	.012	N18E36L073	12381											R2	/2040	025-050					
20150821	0156	0218	0237	M1.2/1F	.022	S16E39L193	12403											g							
20150821	0934	0948	1007	M1.4/2B	.018	S17E26L193	12403				120	73	II/1		1012	0555	270	072	g						
20150821	1910	2034	2050	M1.1/1N	.031	S12E26L193	12403											R2	/2027	012-025					
20150822	0639	0649	0659	M1.2/1B	.010	S15E20L193	12403				330	62	II/2	IV/2	0712	0547	360	095	R	/0659	012-025				
20150822	2119	2124	2128	M3.5/1B	.011	S15E15L193	12403								2336	0225	010	195	R	/2124	050-100				
20150824	0726	0733	0735	M5.6/1B	.011	S15W04L193	12403				6900	100			0848	0272	088	245							
20150824	1740	1746	>1749	M1.0	.003	s15w11L193	12403																		
20150827	0448	0544	0603	M2.9/1N	.042	S14W45L193	12403								0736	0191	022	247							
20150828	1304	1316	1323	M2.2/1F	.016	S14W65L193	12403											R	/1311	025-050					
20150828	1856	1903	1906	M2.1/1N	.005	S13W70L193	12403																		
20150830	0201	0330	>0423	M1.4	.071	S14W75L193	12403																		
20150917	<0928	0934	>0935	SF/M1.1	.0046	S21W04L230	12415																		
20150920	0455	0503	>0517	M1.5	.013	N09E83L108	12420											R	/0502	025-050					
20150920	1730	1803	1959	2N/M2.1	.045	S20W24L230	12415				140	320	II/1		1812	1239	360	219	R	/1815	012-025	20	2045	0003	
20150927	1020	1040	1046	M1.9/1F	.0098	S22W08L106	12422											R	/1023	012-025					
20150927	2054	2100	2115	M1.0/1N	.0081	S21W16L106	12422											R	/2059	025-050					
20150928	0345	0355	0359	M3.6/SF	.016	S09W67L149	12423				270														
20150928	0727	0735	0746	M1.1/1F	.0085	S22W08L106	12422							0748	0634	118	288	R	/0729	006-012					
20150928	1301	1318	1329	M1.1/1N	.013	S22W24L106	12422							1448	0237	076	265	R	/1308	012-025					
20150928	1453	1458	>1503	M7.6	.028	S21W26L106	12422					100													
20150929	0311	0316	0331	M1.2/SF	.0026	S08W78L149	12423											R2	/0314	025-050					
20150929	0341	0343	0353	M1.1/SF	.0003	S20W36L106	12422																		
20150929	0505	0516	0523	M2.9/SF	.019	S21W37L106	12422				410			0548	0503	031	254								
20150929	0533	0537	0539	M1.2/SF	.0026	S09W82L149	12423											R2	/0537	012-025					
20150929	0553	0556	>0604	M1.0	.0016	S10W80L106	12422											R	/0555	012-025					
20150929	0639	0643	0646	M1.4/1N	.0035	S20W34L106	12422								0836	0373	117	351?							
20150929	0846	0851	0855	M1.3/1N	.0067	S10W77L149	12423				200														
20150929	1109	1115	1120	M1.6/1B	.0061	S21W37L106	12422							1336	0164	107	351	R	/1114	025-050					
20150929	1920	1924	1927	M1.1/1B	.012	S20W36L106	12422				330			2000	0523	090	247								
20150930	1049	1059	1113	M1.3/1N	.014	S22W46L106	12422											R2	/1054	025-050					
20150930	1318	1320	1321	M1.1/1N	.0016	S23W59L106	12422														01	0000	0001		
20151001	1303	1310	1314	M4.5/SN	.013	S23W64L106	12422											g							
20151002	0006	0013	0017	M5.5/1N	.020	S19W67L106	12422							g(02/00-03/00)				R	/0012	050-100					
20151002	1219	1226	>1231	M1.0	.0041	S19W74L106	12422							g				R	/1225	025-050					

DATE y m d	TIME			CLASS		COORDINATES		AR	RADIO MHz		DYNAMIC EVENT		CME		X-ray hard		PROTONS		Attendant phenomena	
	to	tm	te	IMPORTANCE	IF	lt	lg		L	245	2695	RADIO SWEEP	to	v	/da	/pa	An	tm		E _{max} ,
				X-ray/opt	J·m ⁻²				sfu				km/s		keV	D	tmax/Ipr			
20151002	1708	1718	>1723	M1.0/SF	.0021	S19W76L106	12422									R	/1717/025-050			
20151004	0234	0241	>0248	M1.0	.005	S20W90L106	12422									R	/0240/025-050			
20151015	2327	2331	>2337	M1.1/SF	.0055	S11E50L162	12434									R	/2331/025-050			
20151016	0611	0616	0620	M1.1/SF	.0036	S11E46L162	12434	1000	90			0724/0388/010/030				R	/0616/050-100			
20151017	2009	2023	>2028	M1.1	.006	S19E88L122	12437					2136/0186/047/110								
20151017	2035	2042	>2046	M1.5	.006	S18E88L122	12437					2348/0164/044/111								
20151031	1748	1752	>1808	M1.0/SF	.0027	N06E51L316	12443					1836/0312/009/019			R	/1752/025-050				
20151104	0320	0326	0334	M1.9/1N	.0052	N15W64L027	12445	56000	220	II/2		0412/0516/343/021			R	/0325/050-100				
20151104	1155	1203	>1219	M2.5/1N	.0073	N12W73L027	12445	3600	28	II/1		1236/0460/064/278			R	/1202/100-300				
20151104	<1327	1352	>1413	M3.7/2B	.059	N09W04L316	12443	1400	340	II/2	IV/1	1448/0701/360/288			R	/1342/050-100				
20151109	1249	1312	>1510	M3.9/2B	.047	S11E41L207	12449					1326/1041/273/137			R	/1311/025-050	10 0020/0004			
20151221	0052	0103	>0111	M2.8	.019	N04E90L329	12472					0127/0389/071/116			R	/0113/012-025				
20151221	1009	1019	>1032	M1.1/1N	.010	N04E85L329	12472					1048/0405/051/117								
20151222	0315	0334	>0348	M1.6/SF	.021	S23E75L332	12473	120				0348/0382/029/111			R	/0323/025-050				
20151223	0023	0040	>0052	M4.7/1F	.049	S22E63L332	12473	500		II/2	IV/2	0126/0544/089/110			R	/0035/050-100				
20151224	0149	0212	>0222	M1.1	.013	S22E50L332	12473								R2	/0210/025-050				
20151228	1120	1245	>1409	M1.8	.110	S20W10L332	12473	470	370		IV/1	1212/1212/360/163			R	/1201/006-012	29	~01/0003		

2016

DATE y m d	TIME			CLASS		COORDINATES		AR	RADIO MHz		DYNAMIC EVENT		CME		X-ray hard		PROTONS		Attendant phenomena		
	to	tm	te	IMPORTANCE	IF	lt	lg		L	245	2695	RADIO SWEEP	to	v	/da	/pa	An	tm		E _{max} ,	E>10MeV
				X-ray/opt	J·m ⁻²				sfu				km/s		keV	D	tmax/Ipr				
20160101	2310	0011	>0101	M2.3	.110	S20W73L332	12473				II/1	2324/1730/360/227			R	/2344/006-012	02 0450/0021				
20160212	1036	1047	>1053	M1.0	.0058	N11W14L089	12497									R	/1045/025-050				
20160213	1516	1524	>1550	M1.8/1B	.0043	N13W25L089	12497									R	/1533/025-050				
20160214	1918	1926	>1929	M1.0/SF	.004	N15W47L089	12497									R	/1924/006-012				
20160215	1041	1100	1159	M1.1/1N	.007	N10W52L089	12497					1148/1083/022/287			R2	/1047/050-100					
20160418	0014	0029	>0102	M6.7/1F	.049	N12W62L344	12529		150	120	II/2	IV/2			g						
20160721	0042	0046	>0050	M1.2	.004	N03W42L165	12567		100												
20160721	0134	0149	>0204	M1.0	.012	N02W42L165	12567														
20160723	0146	0211	>0223	M5.0	.054	N05W73L165	12567	140				0236/0270/038/275									
20160723	*0500	0516	>0524	M7.6/3B	.046	N02W74L167	12567	660	310			0524/0835/117/271			R	/0504/006-012					
20160723	*0527	0531	0533	M5.5/3B	.011	N02W74L167	12567	1400	900	II/1	IV/2										
20160724	0609	0620	0632	M2.0/SF	.017	N03W84L167	12567									R	/1618/050-100				
20160724	1730	1743	>1812	M1.9	.036	N07W89L168	12567					1824/0244/010/277			R	/1738/100-300					
20160807	1437	1444	>1448	M1.3	.0046	N09W67L321	12572					1524/0986/029/239			g						
20161129	1719	1723	1736	M1.0/SN	.002	S07E55L139	12615									R2	/1728/100-300				
20161129	2329	2338	>2340	M1.2/SF	.004	S08E52L139	12615									R	/2306/100-300				

2017

DATE		TIME			CLASS		COORDINATES		AR	RADIO MHZ		DYNAMIC EVENT		CME		X-ray hard		PROTONS		Attendant										
y	m	d	to	tm	te	IMPORTANCE	IF	lt	lg	L	245	2695	RADIO SWEEP	to	v	/	da	/	pa	An	/	tm	/	Emax,	E>10MeV	GLE	n	phenomena		
						X-ray/opt	J·m ⁻²					sfu												keV	D		tmax/	Ipr		
20170401	2135	2148	2240	M4.4/1F	.046	N16W53L054	12644	570					IV/3							R	/	2134/050-100								
20170402	0750	0802	0946	2N/M5.3	.044	N12W59L054	12644	100					II/1	IV/1	0824/0868/078/292c					R2	/	0742/025-050								
20170402	1252	1300	>1311	M2.3	.016	N14W63L054	12644				110									R	/	1318/025-050								
20170402	1818	1838	>1928	M2.1/SF	.061	N16W68L054	12644	230							1924/0405/084/289c					R3	/	1807/006-012								
20170402	2026	2033	>2038	M5.7	.022	N16W70L054	12644	670							2212/0762/012/293c															
20170403	0056	0105	>0112	M1.2/SF	.0082	N15W75L054	12644													R	/	0045/006-012								
20170403	1415	1429	1454	2N/M5.8	.031	N19W80L054	12644	6800	100	II/2	IV/1									R	/	1422/100-300								
20170703	1537	1615	>1618	M1.3	.004	N03W89L314	12664		140					1724/0256/040/267						R	/	1731/012-025								
20170709	0304	0318	0353	2N/M1.3	.013	S08E37L111	12665							g						R2	/	0340/050-100								
20170714	0107	0209	0455	M2.4/1N	.13	S06W29L111	12665		130				IV/1							R5	/	0314/100-300	14	0900/0022						
20170820	0136	0152	>0203	M1.1	.011	N06E89L225	12672													R	/	0157/100-300								
20170904	0536	0549	0629	M1.2/1F	.015	S10W04L117	12673													R	/	0601/006-012								
20170904	*1343	1530	<2359	3B/M1.5	.006	S06W13L117	12673	130	100											R	/	1526/006-012								
20170904	*1805	1822	>1831	M1.0/3B	.011	S07W11L117	12673								1912/0624/288/333c															
20170904	*1846	1937	>1952	M1.7	.045	S09W10L117	12673						IV/1		1912/0874/016/235c				R2	/	1903/026-050									
20170904	*1959	2002	>2006	M1.5	.004	S16W14L117	12673								1912/1077/012/263c															
20170904	*2028	2033	>2359	3E/M5.5	.018	S11W16L117	12673								2048/0803/014/244c					R	/	2143/050-100	08	0035/0844						
20170904	2210	2214	>2219	M2.1	.008	S09W12L117	12673								2324/0578/018/226c															
20170905	0103	0108	>0111	M4.2	.010	S09W14L117	12673								0136/0610/012/237c					R	/	0101/006-012								
20170905	0342	0351	>0404	M1.0	.011	S09W15L117	12673													R	/	0400/006-012								
20170905	0433	0453	0507	M3.2	.051	S11W18L117	12673						IV/2		0524/1227/006/242					R	/	0406/006-012								
20170905	0633	0640	0643	M3.8	.010	S11W18L117	12673													R	/	0643/006-012								
20170905	1737	1743	1830	M2.3/1N	.012	S09W24L117	12673								1812/0488/028/161					R2	/	1755/100-300								
20170906	*0852	0910	>1553	2B/X2.2	.130	S07W33L117	12673	410							1000/0419/042/252					R2	/	1123/100-300								
20170906	*1153	1202	>1553	X9.3/2B	.570	S08W33L117	12673	3200	14000	II/2	IV/2				1212/0978/360/001c					R6	/	1208/100-300								
20170906	1551	1556	1752	M2.5/3N	.014	S09W38L117	12673													R3	/	1606/100-800								
20170906	*1921	1930	1935	1F/M1.4	.009	S08W38L117	12673													R	/	1915/100-300								
20170906	*1753	2339	>2359	1F/M1.2	.005	S07W44L117	12673								2124/0495/020/235c					R14	/	2301/100-300								
20170907	0459	0502	>0547	M2.4/1F	.007	S07W45L117	12673													R	/	0500/100-300								
20170907	<0935	0954	>1128	1N/M1.4	.004	S08W47L117	12673	25000	260			IV/2			1024/0488/018/488c					R2	/	0959/100-300								
20170907	1011	1015	>1018	M7.3	.014	S07W46L117	12673	91000	810			IV/2			1136/0388/014/260c					R	/	1008/100-300								
20170907	1420	1436	1455	X1.3/2B	.120	S11W49L117	12673	670	1600	II/1					1524/0449/050/244c					R	/	1455/100-300								
20170907	2350	2359	0110	M3.9/2B	.036	S09W50L117	12673							IV/2						R	/	2351/006-012								
20170908	0219	0224	>0229	M1.3/1F	.004	S09W54L117	12673								0417/0629/028/251c															
20170908	0339	0343	>0345	M1.2/SF	.002	S06W55L117	12673	15000							0428/1080/038/270c					R	/	0329/012-025								
20170908	0740	0749	0913	M8.1/2B	.047	S10W57L117	12673		69											R	/	0750/100-300								
20170908	1509	1547	1608	M2.9/1N	.053	S08W68L117	12673	450												R2	/	1512/100-300								
20170908	2333	2345	>2356	M2.1	.017	S08W69L117	12673						IV/1							R	/	2328/100-300								
20170909	0414	0428	>0443	M1.1/SF	.013	S13W69L117	12673								0524/0355/018/271c					R	/	0413/100-300								
20170909	1050	1104	1239	M3.7/SF	.071	S14W74L117	12673	100												R2	/	1049/100-300								
20170909	2204	2353	0041	M1.1/SF	.069	S07W74L117	12673		450	II/2	IV/2				2312/1077/104/275c					R3	/	2236/100-300								
20170910	1535	1606	1631	X8.2	.400	S08W90L117	12673	670	1900	II/1	IV/2				1648/2013/360/144c					R2	/	1553/100-300	10	1630/1490	GLE			LPS		
20171020	2310	2328	>2337	M1.1	.009	S12E88L128	12685	110					II/1							R	/	2311/100-300								